

Regulatory Update and Proposed Amendments to the Regulation for In-Use Off-Road Diesel Fueled Fleets



**January 22, 2009
Sacramento, CA**

California Environmental Protection Agency

Air Resources Board



Overview

- Regulation Background
- Implementation Update
- Technology Update
- Emissions
- Proposed Changes



Regulation Background



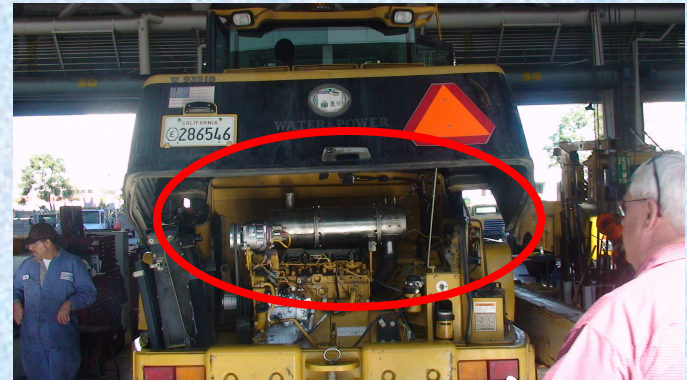
Regulatory Status

- Approved by Board July 26, 2007
 - Directed staff to report back by January 2009
 - Future updates in 2010, 2013 and 2017
- U.S. EPA approval needed to fully enforce regulation
 - Request submitted on August 12, 2008
 - Awaiting decision



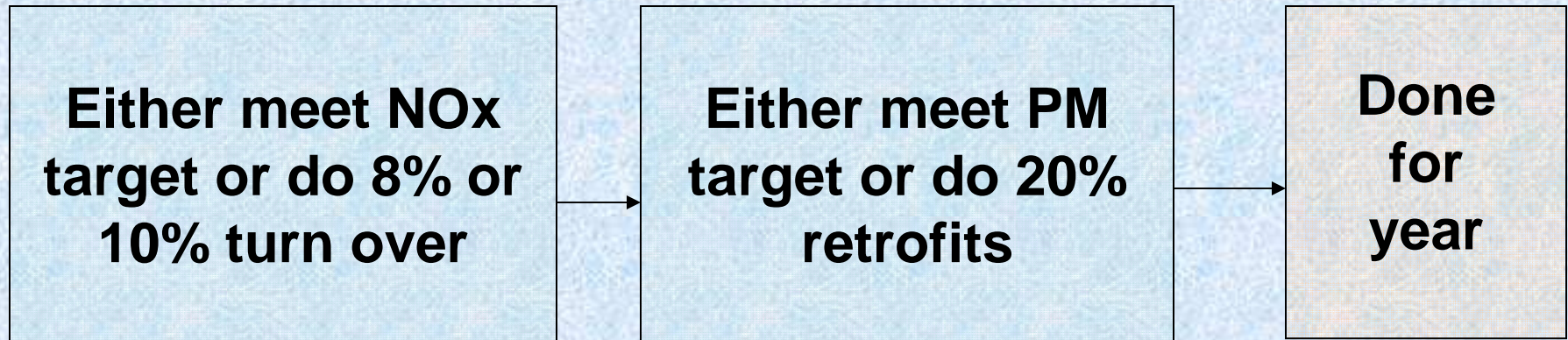
Key Dates

- June 15, 2008
 - Idling
 - Sales disclosure to buyers
 - Enforcement has begun
- March 1, 2009
 - Cannot add Tier 0s
 - Deadline for early double retrofit credit
- April 1 – August 1, 2009
 - Initial reporting required
 - Labeling 30 days after receive identification numbers
- March 1, 2010
 - 1st fleet average compliance date for large fleets
- 2013 and 2015
 - 1st fleet average compliance date for medium and small fleets

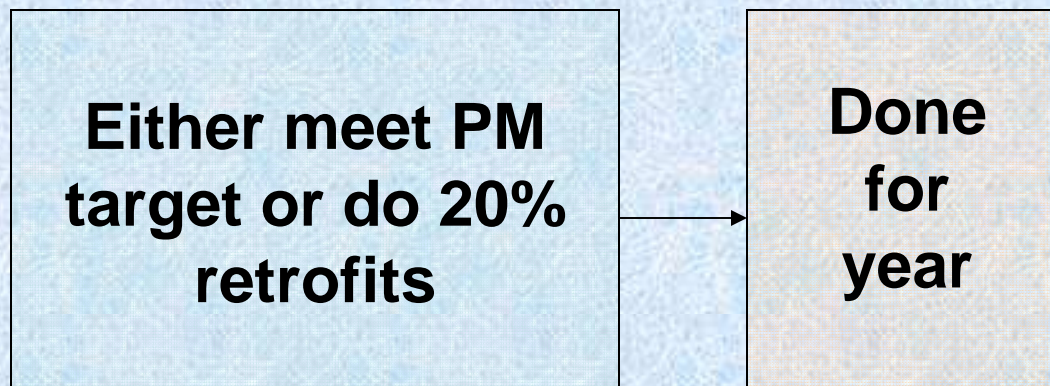


Annual Compliance Process

Large and Medium Fleets: NOx and PM Requirements
Begins 2010 for Large, 2013 for Medium fleets



Small Fleets: PM Requirements ONLY
Begins 2015

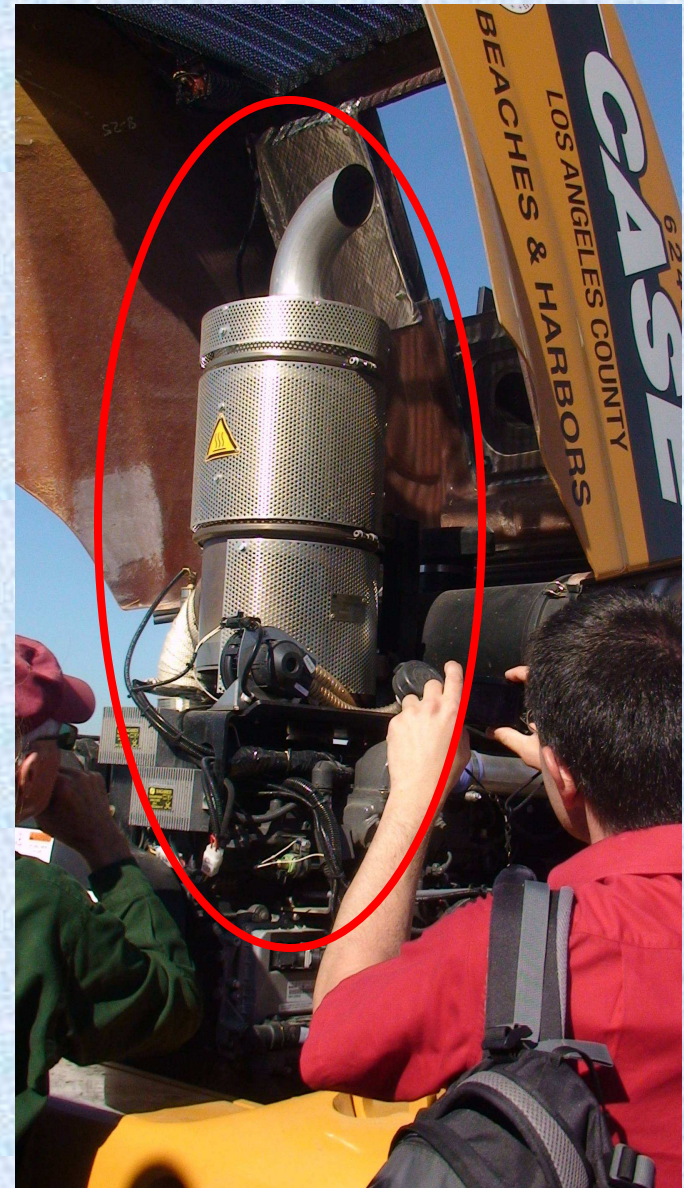
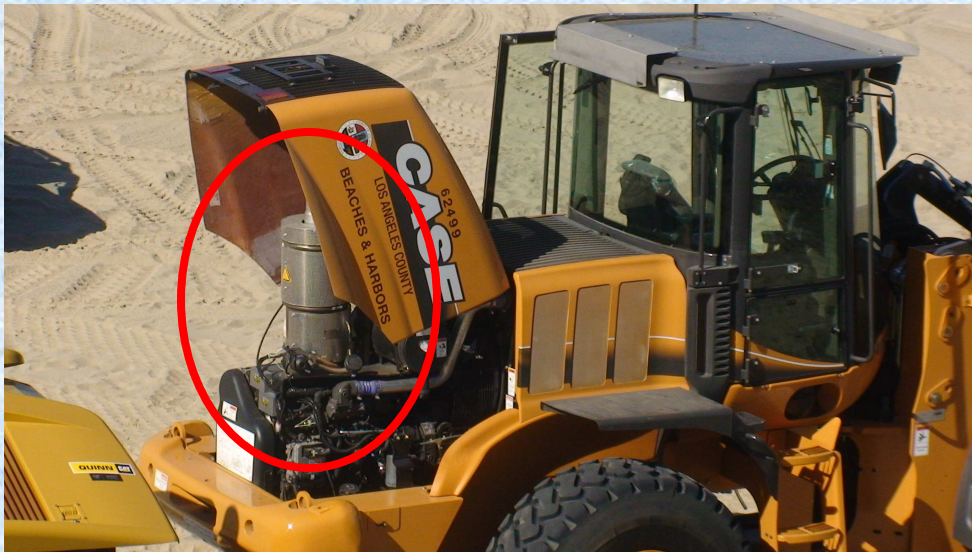


SIP Requirements

- SIP driven by air quality in South Coast and San Joaquin Valley
- Regulation is an integral part of SIP
- PM reductions needed
 - PM2.5 attainment target date
 - 2014 for both SC and SJV
- NOx reductions needed
 - 8-hr ozone attainment target date
 - 2017 – SJV emission reduction commitment
 - 2023 for both SC and SJV

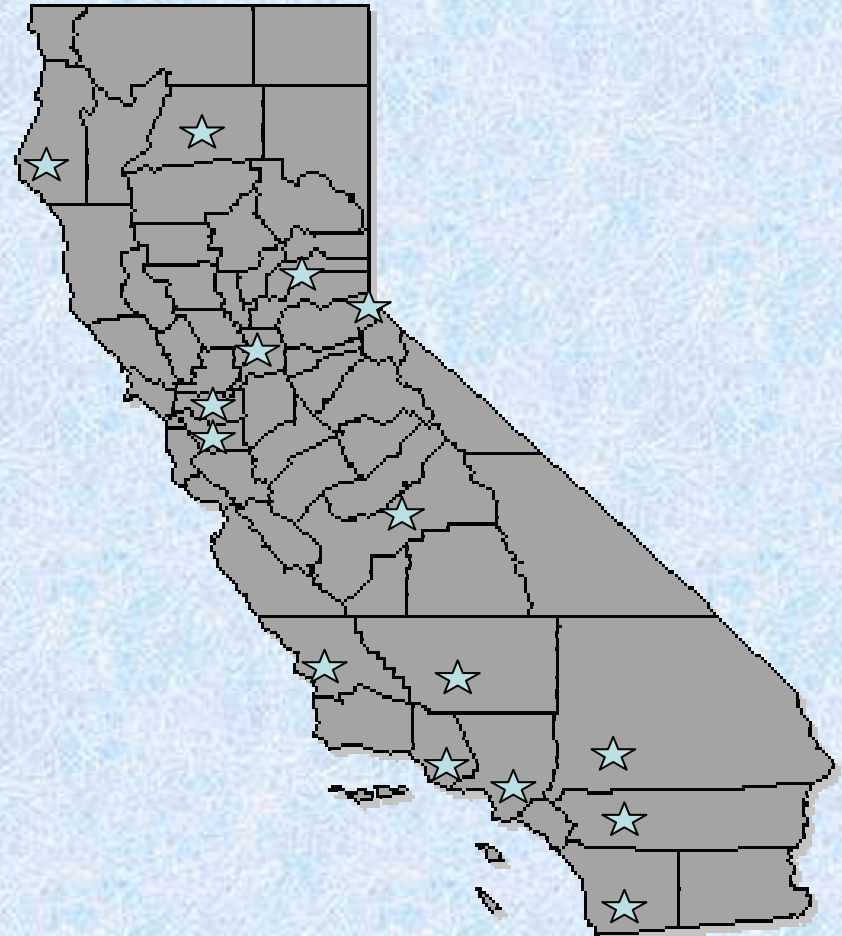


Implementation Update



Statewide Training Seminars

- 16 free half-day training seminars in 15 cities
- Sent over 12,000 flyers
- Advertised in local newspapers
- Over 1,500 attendees
- 6 more seminars being scheduled



Other Public Outreach

- Over 50 meetings, conferences, and events
- Multiple mailings and emails
- Working with CSLB
 - 15,000 flyers/month in renewal notices
- Training videos
- Radio station public service announcements



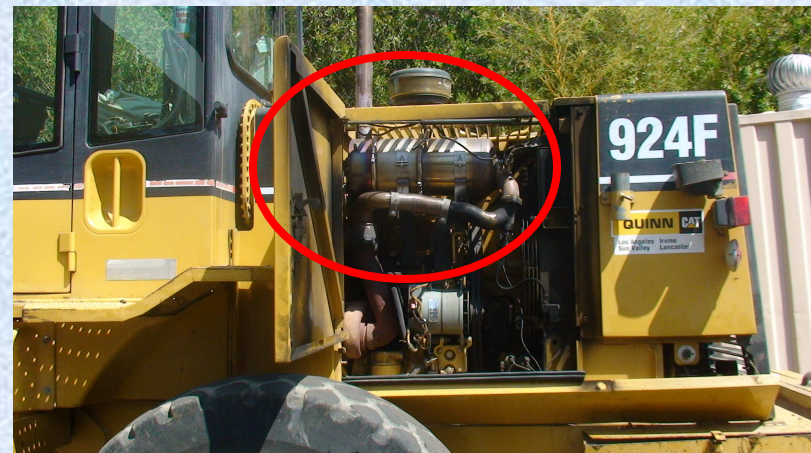
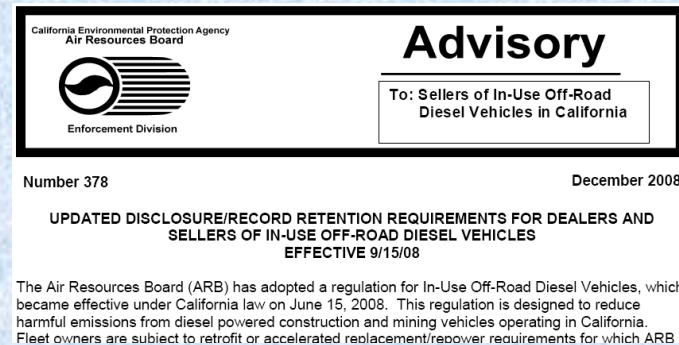
Guidance Documents

Currently Available:

- Implementation advisories
- Enforcement advisories
- Frequently Asked Questions (FAQs)
- Fact Sheets

Under Development:

- Retrofit feasibility
- Regulation applicability to unique vehicles



Off-Road Implementation Advisory Group

- Created March 2008
- 50 members representing range of stakeholders
- Three general meetings and numerous subcommittee meetings
 - All were webcast
- Subcommittees:
 - Safety, Fleets, Diesel Emission Control Systems, Reporting
- Input on all guidance documents and training presentations



ORIAG meeting



DOORS Reporting System

- An on-line tool which allows fleets to report electronically
- Retains fleet data for future reporting
- Includes additional features such as automated compliance planning
- User guides available online
- Toll-free hotline
- **Currently 143 fleets with 10,500 vehicles already reported**



DOORS and Labeling

Vehicle labeled with EIN



DB8B97

CA.GOV California Environmental Protection Agency **AIR RESOURCES BOARD**

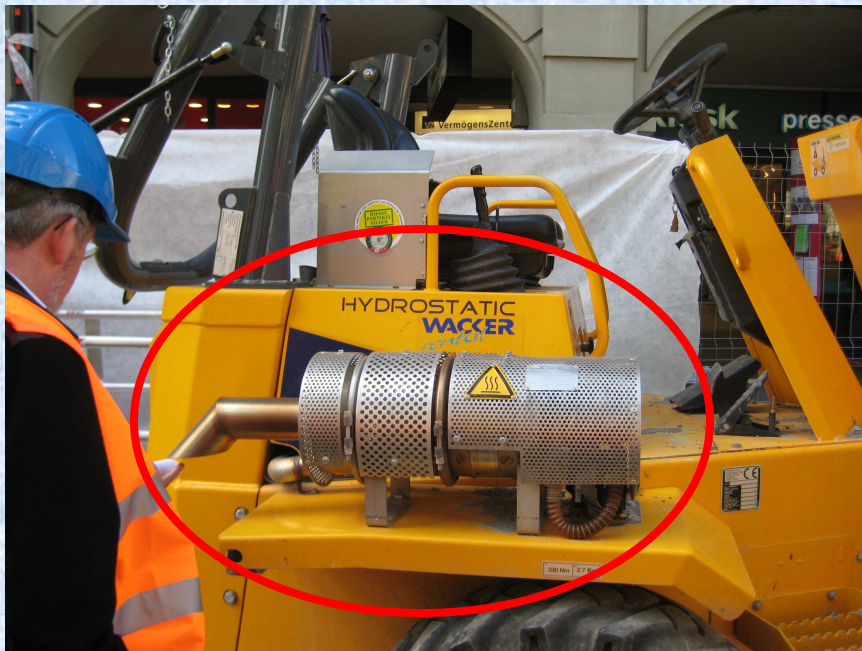
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DIESEL OFF-ROAD ON-LINE REPORTING SYSTEM (DOORS)

Select the fleet with which you want to work, then select the action below:	enter a fleet An * indicates fleets that you have submitted for ARB review.	
Select the action you would like to take, then click on "Take Action":	Upload Fleet Data	Take Action Exit
The green area below applies to and works for fleets that have been reviewed by ARB.		
Select the fleet with which you want to work, then select the action below:	Sample Fleet with about 50 vehicles	
Select the action you would like to take, then click on "Take Action":	View EINs	Take Action Exit

DOORS on-line screen

Technology Update



Retrofit Verification

- Ensures emission reductions and durability
- Provides end user warranty
 - 4-5 years and 2,600-4,200 operating hours
 - A current list of verified devices is located at:
www.arb.ca.gov/diesel/verdev/verdev.htm

Level	PM Reduction	Typical Device
2	$\geq 50\%$	Flow-thru filter
3	$\geq 85\%$	Particulate filter



DPF durability demonstration on concrete

Active/Passive DPFs

- PM collected in DPF over time
- Trapped PM must be burned off or "regenerated" periodically
 - Active regeneration: Needs heat to regenerate – electricity or burning additional fuel
 - Passive regeneration: No outside energy required
 - Some fleets have a strong preference or need for passive filters



Verified Devices Before July 2007

- Only three systems, all active DPFs

Product	Applicability
Cleaire Horizon	Conditionally verified, active plug-in
Engine Control System Combifilter	2007 or older, active plug-in
HUSS Umwelttechnik FS_MK	Most engines through 2008 model year, active fuel-burner



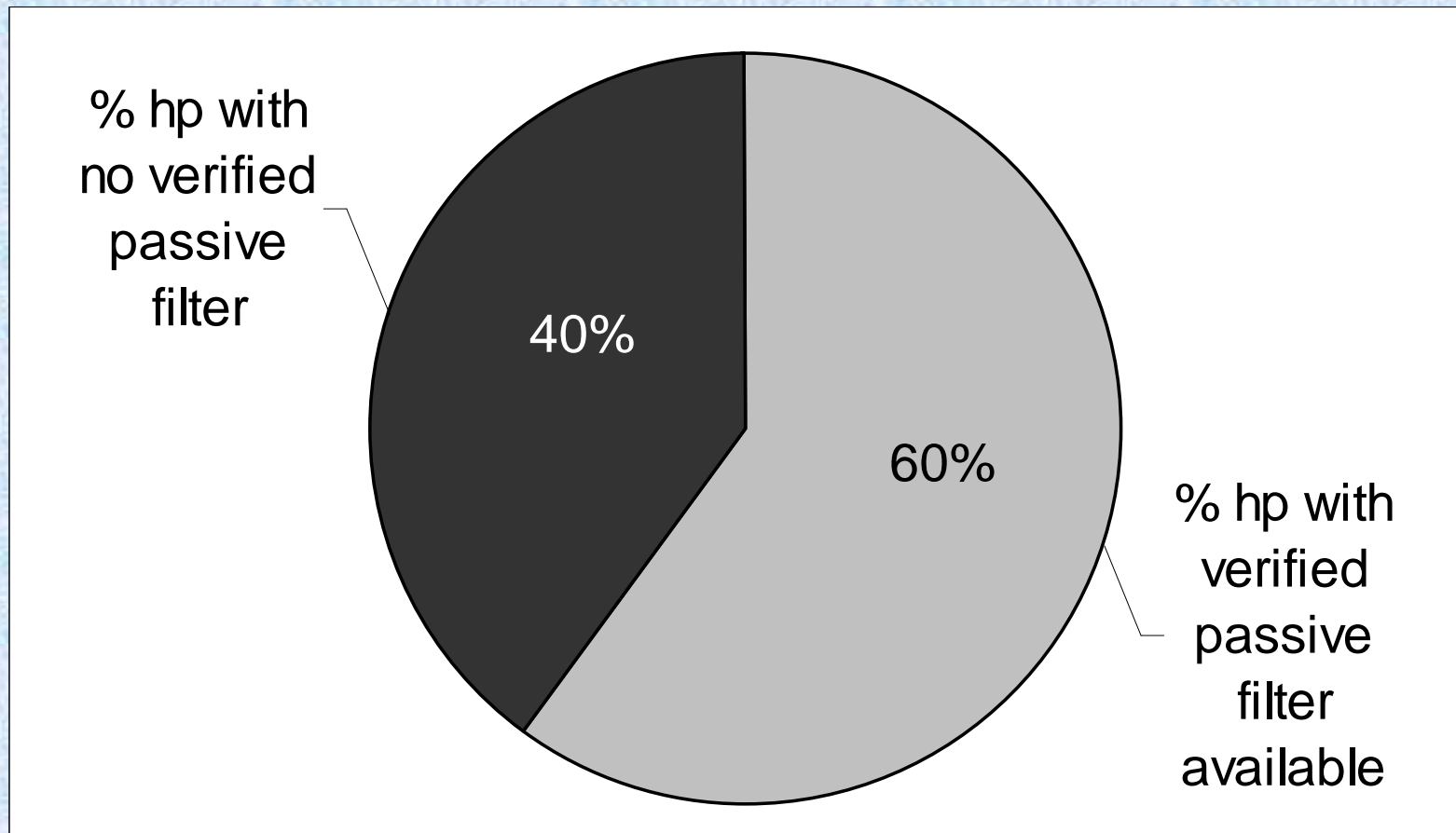
Verified Devices Since July 2007

- All passive

Product	Applicability	Date Verified
Caterpillar DPF	Many 1996-2008 model year engines; 175-600 hp, passive	January 22, 2008, expanded October 24, 2008
Cleaire Lonestar	Conditionally verified for many 1996 – 2009, passive + 40% NOx reduction	December 23, 2008
DCL MINE-X Sootfilter	Conditionally verified for 1996-2008 model year, rubber tired	January 24, 2008
Engine Control Systems' Purifilter	Conditionally verified for many 1996-2008 model years, passive	October 20, 2008

Verified Devices - www.arb.ca.gov/diesel/verdev/verdev.htm

Passive Retrofit Availability*



* Dependent on operating temperatures.

Off-Road Retrofit Demonstration Projects

Showcase and U.S. EPA SEP

- Funded for approximately \$6.0 million
- Engines: Tier 0 to Tier 3
- 35 retrofits completed



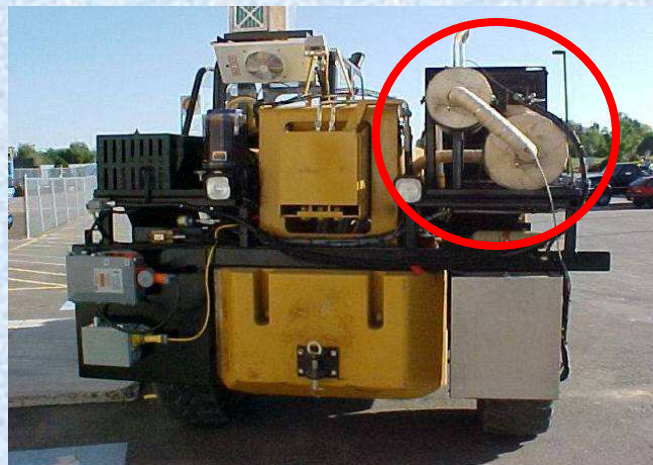


With retrofit

Without retrofit

Overall Findings

- More vehicles than expected can be retrofit with lower cost passive DPFs
- Off-road retrofits are durable and function well
- Proper installation critical
- Positive reaction from participating fleets
- Slower start to demonstrations than expected



Retrofit Costs

- Passive retrofits available for more vehicles than originally estimated
 - Too few installations to evaluate overall cost
 - Caterpillar system costs in line with staff's estimates
 - \$15,000- \$22,000
 - Passive retrofits cost less than active systems
- Active systems still more expensive
 - Costs based on a limited number of installations
 - ~ 30% higher costs than original staff estimate
- Overall retrofit costs expected to decrease over time



Retrofit Safety

- Regulation already exempts any vehicle that cannot be retrofit safely
 - Includes appeal procedure
 - Staff working with CalOSHA and industry work group to develop protocol for evaluation of safety claims
- AGC and Operating Engineers petition CalOSHA to change safety standards
 - CalOSHA Board directed staff to work with the Petitioners and ARB

Current Emissions Estimates

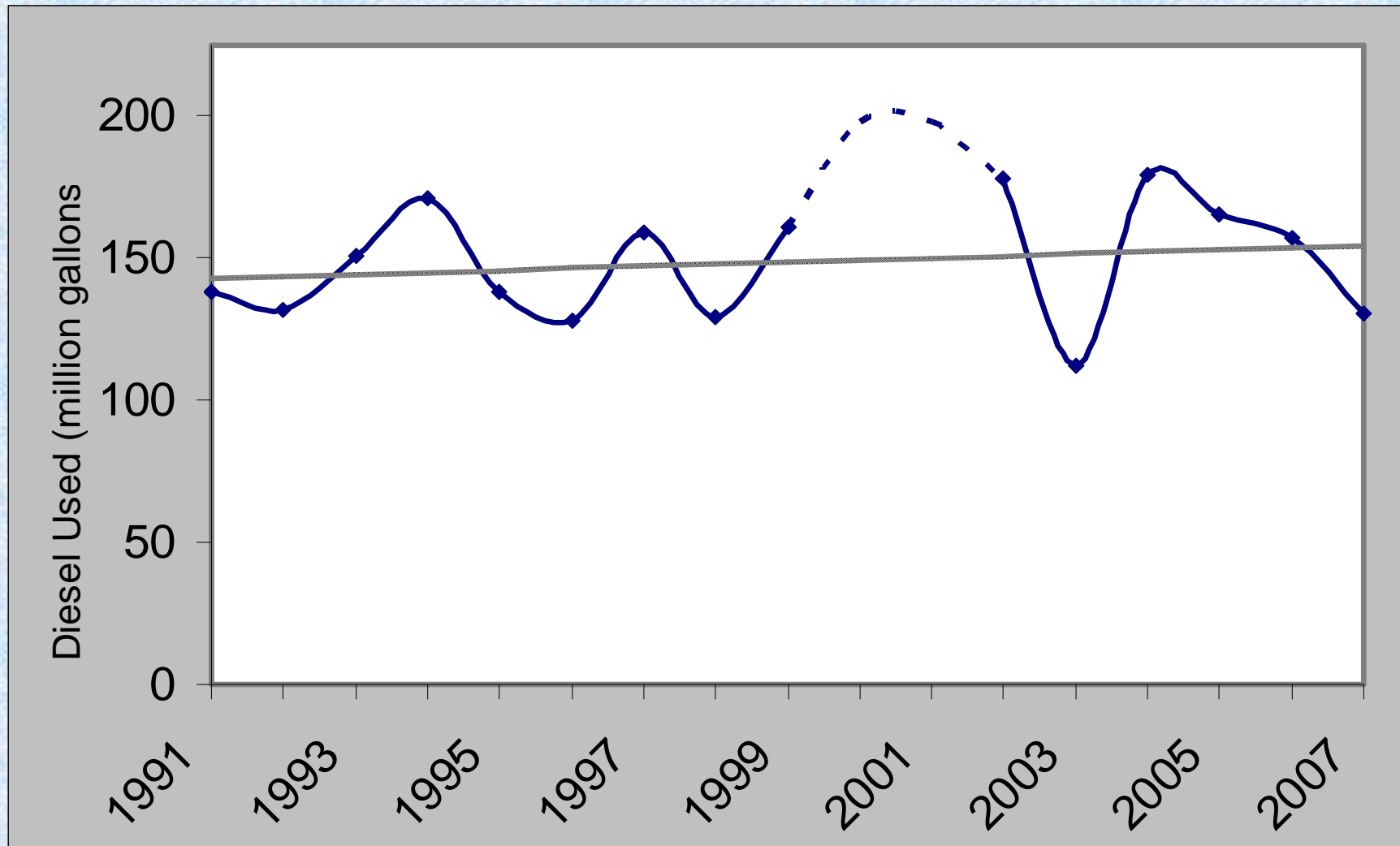


Factors Affecting Emissions

- Decrease in activity could reduce emissions
- Changes in vehicle turnover could change emissions
 - Emissions up if slower new vehicle purchases
 - Emissions down if faster retirement of older vehicles
- Staff investigated current economic indicators



Diesel Fuel Used in Construction: California



Current Relief Provisions

- Early credit (before March 1, 2009)
 - Credit for over 24% turnover
 - Credit for repowers
 - Double credit for retrofits
- Downsize after March 1, 2009
 - Turnover and retrofit credit
- Designate low use
 - Turnover credit



Proposed Modifications



Installation under hood



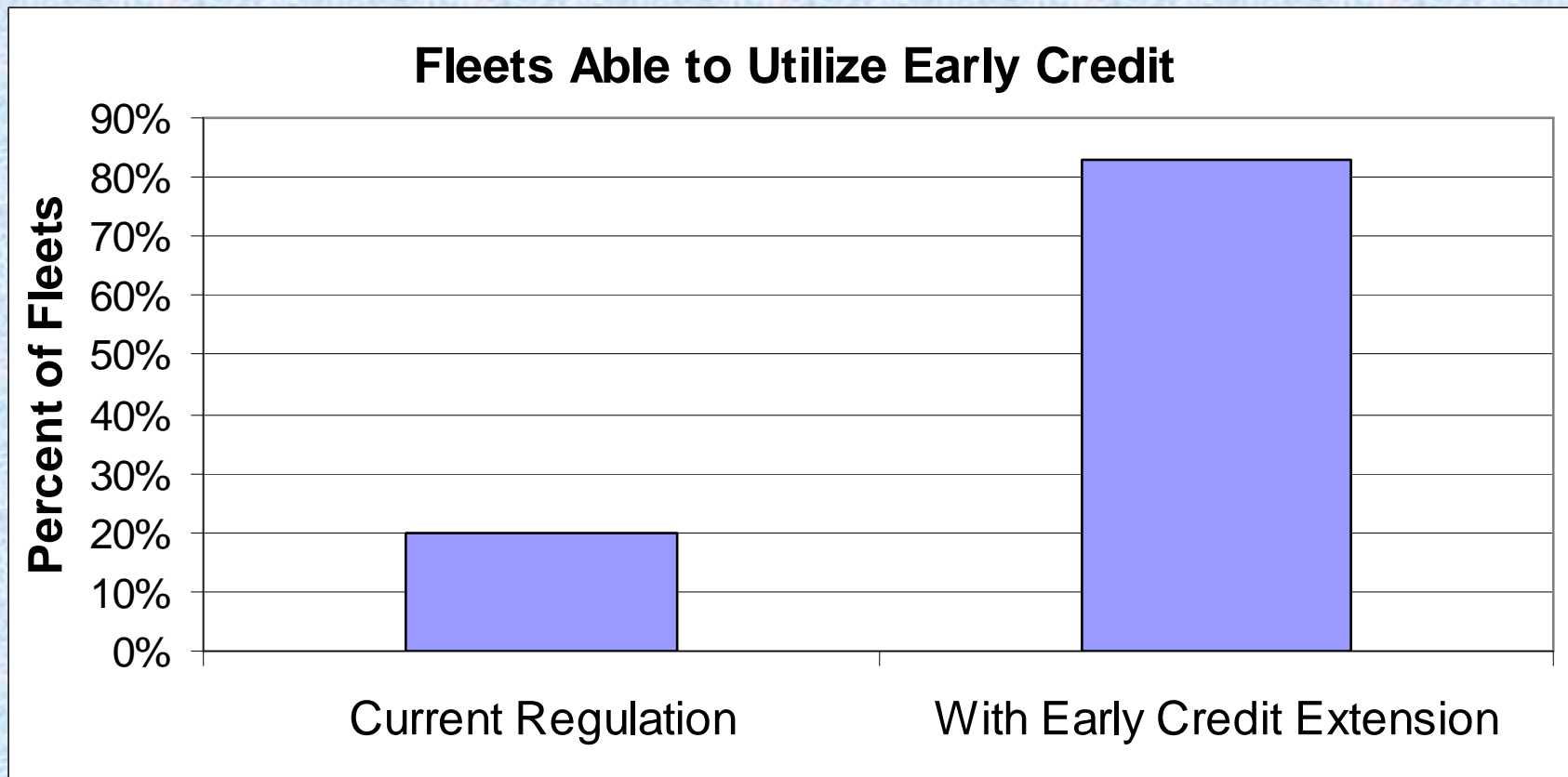
Extend Early PM Double Credit

- Extend the double credit for early PM retrofits deadline by 10 months from March 1, 2009 to January 1, 2010
- Will allow more fleets to take advantage of this early credit provision
- Limited emissions impact



Early Credit Availability

Fleets can utilize early credit and cut their PM requirements for 2010 in half



Other Minor Clarifications

- Clarify provisions for Tier 1 vehicles
- Clarify that all sellers must meet the disclosure requirements
- Retrofit reporting
- Clarify provisions for changing fleet size



Staff Recommendation

Approve the proposed amendments

